Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name : System Programming
Subject Code : 4TE06SYP1 Branch: B.Tech (IT)
Semester : 6 Date : : 21/04/2017 Time : 02:30 To 05:30 Marks : 70

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 Attempt the following questions (14)

a) Which of the following are language processors?
(a). Assembler (b). Compiler. (c). Interpreter (d). All above.

b) Which of the following is used for grouping of characters into tokens
(a). Parser. (b). Code optimizer. (c). Code generator. (d). Scanner.

c) Software that allows your computer to interact with the user, applications, and hardware is called _____ .
(a). Application software. (b). Word processor.
(c). System software. (d). Database software.

d) Loader is a program that _____
(a). places programs into memory and prepares them for execution..
(b). automates the translation of assembly language into machine language.
(c). accepts a program written in a high level language and produces an object program.
(d). appears to execute a source program as if it were machine language.

e) In an absolute loading scheme which loader function is accomplished by assembler?
(a). Re-Allocation. (b). Allocation. (c). Linking. (d). Loading.

f) An ideal compiler should
(a). be small in size.
(b). produce object code that is smaller in size and execute faster.
(c). takes less time for compiling.
(d). All above.

g) The gap between PL domain and Execution domain is
(a). Semantic gap. (b). Specification gap.
(c). Execution gap. (d). None of above.

h) Which of the following is the most general phase structured grammar
(a). Regular. (b). Context free. (c). Context sensitive. (d). None of these.

i) In procedure oriented language which gap is larger
(a). Execution (b). Semantic (c). Specification.

j) A compiler for a high level language that runs on one machine and produce code for different machine is called
(a). One pass compiler . (b). Multi pass compiler.

(c). Cross compiler. (d). Macro compiler.

k) Shift Reduce parse is not top-down parser (State True/False).

l) Grammar of the programming is checked at _____ phase of compiler.
(a). Intermediate code . (b). Code generator.
(c). Syntax Analysis. (d). Semantic Analysis.

m) Define: Handle.

n) Define: Language processor.

Attempt any four questions from Q-2 to Q-8

Q-2 **Attempt all questions**

(a) What is ambiguous grammar? Explain with example. **(04)**

(b) Compare Top down and Bottom up parser. **(04)**

(c) Given a grammar,
S → aAS' | bS' | cBS' |dS', S'→□ #S'|ε, A→ aA| b , B → cB | d **(06)**
Develop an LL(1) parser table.

Q-3 **Attempt all questions**

(a) Consider the grammar, E→E-E, E→E*E, E→id. **(05)**
Perform shift-Reduce parsing of the input string "id1-id2*id3".

(b) Convert given regular expression to DFA. The expression is abc(a | b)*# **(05)**

(c) Explain different types of Grammar. **(04)**

Q-4 **Attempt all questions**

(a) Explain advanced macro facilities with suitable example. **(07)**

(b) Describe in detail how program relocation and linking is performed. **(07)**

Q-5 **Attempt all questions**

(a) Explain & compare various intermediate code forms (representations) for an assembler. **(07)**

(b) Discuss the problems arising due to backtracking in Top –down Parsing? How these problems can be removed? **(07)**

Q-6 **Attempt all questions**

(a) Explain different data structure used in Pass – I of assembler. **(07)**

(b) Explain following with example. **(07)**
1. Left factoring 2. Left recursion 3.Absolute loader

Q-7 **Attempt all questions**

(a) Explain different types of Loader. **(07)**

(b) Explain Different phases of compiler with suitable example. **(07)**

Q-8 **Attempt all questions**

(a) Draw and explain 1-pass macro processor. **(05)**

(b) Explain with examples - expansion time variables, expansion time statements - AIF and AGO for macro programming. **(04)**

(c) Explain keyword parameter, positional parameter with example. **(05)**